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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,776	05/09/2001	Yoshihiro Kanada	9281-3989	3835

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EXAMINER	
LEADER, WILLIAM T	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/851,776	KANADA ET AL.	
	Examiner	Art Unit	
	William T. Leader	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3 and 4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3 and 4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 14, 2004 has been entered.

2. The preliminary amendment and response to the advisory action have been entered. Claims 3 and 4 are pending.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Applicant has amended claims 3 and 4 to recite in the last paragraph that the lower magnetic pole layer and the gap layer are formed by an electrolytic plating process using a pulsed current. There is no positive basis for "the lower magnetic

pole layer" for the following reason. Both claims 3 and 4 recite step b) as an alternative expression. The first alternative is forming the gap layer directed on the lower core layer. The second alternative is forming a lower magnetic pole layer on the lower core layer and then the gap layer on the lower magnetic pole layer. Thus, the first alternative recited in step b) does not require the formation of a lower magnetic pole layer. Since the lower magnetic pole layer need not be formed, there is no antecedent for "the lower magnetic pole layer" recited in the last paragraph of the claims. Applicant should consider either requiring the formation of the lower magnetic pole layer or, in the last paragraph, including a phrase such as --when it is formed-- after "the lower magnetic pole layer."

Claim Rejections - 35 USC § 103

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al (5,285,340) in view of Sirbola (4,855,020, newly cited, and Sun.

7. The Ju et al patent is directed to a thin film magnetic head. Figure 7 shows a side view of the head. The head includes lower core layer 12, lower pole tip 16, gap layer 19, upper pole tip 20 and upper core layer 22. A specific embodiment of the sequence of process steps used in making the head is illustrated in figure 9. The nonmagnetic gap layer is formed by electroplating a metallic material such as NiP

(column 5, lines 20-22). During fabrication, the head may be subjected to hard baking (column 5, lines 28-29).

8. Claims 3 and 4 differ from the process of Ju et al by reciting that the concentration of phosphorus in the nonmagnetic NiP gap layer is in the range of 11 mass percent to 14 mass percent, and that the lower magnetic pole layer and the gap layer are formed using pulsed current. The Sirbola patent is directed to a method for electrolytic plating of layers of material including nonmagnetic phosphorus. Sirbola teaches that in order to deposit nickel in a nonmagnetic form, from ten to fifteen percent of the deposit must be phosphorus (column 14, lines 60-62). This range encompasses the ranges recited by applicant. The plating bath used by Sirbola may include addition agents. Sirbola teaches that the ability to use these addition agents is cumulative with the benefits of pulse plating, such as fine grain size, leveling, and smoothness (column 14, line 65 to column 15, line 9).

9. The Sun et al article discloses that the use of pulsed current results in improved deposit properties.

10. It would have been obvious at the time the invention was made to utilized a phosphorus content within the range disclosed by Sirbola as producing nonmagnetic deposits to have formed the nonmagnetic deposit in the process of Ju et al because this range results in a nonmagnetic deposit, and to have utilized pulse plating to

have deposited the lower pole and gap layers of Ju et al because the properties of the deposits would have been improved as taught by Sirbola and Sun et al.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (6,381,093), newly cited, in view of Sirbola (4,855,020 and Sun.

12. The Yoshida et al patent is directed to the manufacture of thin film magnetic heads. As shown by the configuration of the head in figure 1, the manufacturing process includes the deposition of lower magnetic core (yoke) layer 21 (211), lower magnetic pole tip layer 22, gap layer 23, upper magnetic pole tip layer 24, and upper magnetic core (yoke) layer 25 (252). Magnetic layers 21, 22, 24 and 25 are plated NiFe (column 10, lines 48-56). Gap layer 23 may be made of a conductive nonmagnetic material such as NiP (column 5, lines 49-53).

13. Claim 3 differs from the process of Yoshida et al by reciting that the concentration of phosphorus in the nonmagnetic NiP gap layer is in the range of 11 mass percent to 14 mass percent, and that the lower magnetic pole layer and the gap layer are formed using pulsed current. Sirbola and Sun are taken as above.

14. It would have been obvious at the time the invention was made to utilized a phosphorus content within the range disclosed by Sirbola as producing nonmagnetic deposits to have formed the nonmagnetic deposit in the process of Yoshida et al because this range results in a nonmagnetic deposit, and to have utilized pulse

plating to have deposited the lower pole and gap layers of Yoshida et al because the properties of the deposits would have been improved as taught by Sirbola and Sun et al.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Canaperi et al (5,576,099) discloses the use of pulse plating to deposit a nonmagnetic NiP layer in the manufacture of a thin film magnetic head.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WL
William Leader
August 20, 2004